

CLAIMS

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1. In a heterodyne receiver having more than one predetermined selectable receive frequency and having at least one intermediate frequency (IF) circuit capable of operation on at least two predetermined intermediate frequencies, a method of selecting one of the at least two predetermined intermediate frequencies, comprising the steps of:
- 10 (a) selecting one of the more than one predetermined selectable receive frequency; and
 - (b) selecting at least one of the at least two predetermined intermediate frequencies for each of the at least one IF circuit in response to the selected one of the
 - 15 more than one predetermined selectable receive frequency, wherein the at least one of the at least two predetermined intermediate frequencies for each of the at least one IF circuit is selected to prevent the generation of any undesirable spurious frequencies as a result of mixing the
 - 20 selected one of the more than one predetermined selectable receive frequency and the selected at least one of the at least two predetermined intermediate frequencies.
2. The method according to claim 1 further comprising
- 25 the step of (c) causing each of the at least one IF circuit to operate on the operating IF selected for each of the at least one IF circuit.
3. The method according to claim 2 wherein the step
- 30 (c) comprises the step of (d) programming at least one programmable frequency generator.
4. The method according to claim 2 wherein the step
- 35 (c) comprises the step of (e) selecting at least one frequency determining device.

5 The method according to claim 2 wherein the step
(c) comprises the step of (f) programming the operating
frequency of at least one programmable filter circuit.

5 6. The method according to claim 2 wherein the step
(c) comprises the step of (g) selecting at least one filter
circuit, the at least one filter circuit having an
operating frequency compatible with the operating IF
selected for each of the at least one IF circuit.

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7. The method according to claim 1 further comprising
the step of (h) preprogramming a database with possible
combinations of the more than one predetermined selectable
receive frequency and the at least two predetermined
15 intermediate frequencies for each of the at least one IF
circuit in a manner such that values within the database
indicate whether or not the combinations will generate one
or more undesirable spurious frequencies; and

20 wherein the selecting step (b) comprises the steps
of:

(i) searching the database entries associated
with the selected one of the more than one predetermined
selectable receive frequency;

25 (j) determining from the database search at least
one of the at least two predetermined intermediate
frequencies for each of the at least one IF circuit,
wherein the determined one of the at least two
predetermined intermediate frequencies for each of the at
least one IF circuit in combination with the selected one
30 of the more than one predetermined selectable receive
frequency will not generate one or more undesirable
spurious frequencies; and

35 (k) defining uniquely the at least one of the at
least two predetermined intermediate frequencies for each
of the at least one IF circuit, as determined in step (j),
to be the operating IF for the at least one IF circuit.

8. The method according to claim 7 further comprising the step of (l) causing each of the at least one IF circuit to operate on the operating IF defined for each of the at least one IF circuit.

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9. The method according to claim 7 further comprising the step of (m) preselecting a default IF for each of the at least one IF circuit; and

10 wherein the searching step (i) comprises the step of (n) searching only those entries within the database that are relevant to both the selected one of the more than one predetermined selectable receive frequency and to each preselected default intermediate frequency, and

15 wherein the defining step (k) comprises the steps of:

(o) defining the operating IF for each of the at least one IF circuit to be the preselected default IF for each of the at least one IF circuit, in response to the determination that the preselected default IF for each of the at least one IF circuit in combination with the selected one of the more than one predetermined selectable receive frequency will not generate one or more undesirable spurious frequencies; and

20 (p) defining the operating IF for each of the at least one IF circuit to be one of the at least two predetermined intermediate frequencies that is different from the preselected default IF for each of the at least one IF circuit, in response to the determination that the preselected default IF for each of the at least one IF circuit in combination with the selected one of the more than one predetermined selectable receive frequency will generate one or more undesirable spurious frequencies.

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35 10. The method according to claim 8 wherein the step (l) comprises the step of (q) programming at least one programmable frequency generator.

11. The method according to claim 8 wherein the step (1) comprises the step of (r) programming the operating frequency of at least one programmable filter circuit.

5 12. A heterodyne receiver for receiving radio frequency signals comprising:

receive frequency selection means for selecting more than one predetermined selectable receive frequency;

10 controller means coupled to the receive frequency selection means for controlling the heterodyne receiver in response to the selected one of the more than one predetermined selectable receive frequency; and

intermediate frequency (IF) circuit means coupled to the controller means and having at least two
15 predetermined intermediate frequencies of operation; and

wherein the controller means comprises:

IF selection means for selecting at least one of the at least two predetermined intermediate frequencies of operation; and

20 spurious frequency prevention means coupled to the IF selection means for preventing the selection of any intermediate frequencies that will generate one or more undesirable spurious frequencies when mixed with the selected one of the more than one predetermined selectable
25 receive frequency.

13. The heterodyne receiver according to claim 12 wherein the spurious frequency prevention means comprises a memory means comprising a preprogrammed database,

5 wherein the database comprises a plurality of values defining possible combinations of the more than one predetermined selectable receive frequency and the at least two predetermined intermediate frequencies of operation, each of the plurality of values further indicating whether
10 or not the combination will generate one or more undesirable spurious frequencies, and

 wherein the IF selection means comprises logical elements to prevent selection of any combinations of IF and the selected one of the more than one predetermined
15 selectable receive frequency if such combinations will generate one or more undesirable spurious frequencies when mixed together.

14. The heterodyne receiver according to claim 12
20 wherein the IF circuit means comprises a programmable frequency generator.

15. The heterodyne receiver according to claim 12 wherein the IF circuit means comprises a selectable
25 frequency determining device.

16. The heterodyne receiver according to claim 12 wherein the IF circuit means comprises a programmable IF filter circuit.

17. A selective call receiver comprising: ✓
antenna means for accepting radio frequency (RF)
signals comprising selective call information;
- 5 heterodyne receiver means coupled to the antenna
means for receiving the RF signals comprising information
and for demodulating the RF signals to derive the
information;
- 10 receive frequency selection means for selecting
more than one predetermined selectable receive frequency;
intermediate frequency (IF) circuit means, the IF
circuit means having at least two predetermined
intermediate frequencies of operation; and
- 15 controller means coupled to the receive frequency
selection means and to the IF circuit means for controlling
the heterodyne receiver in response to the selected one of
the more than one predetermined selectable receive
frequency, the controller means comprising:
- 20 IF selection means for selecting at least one of
the at least two predetermined intermediate frequencies of
operation; and
- 25 spurious frequency prevention means coupled to
the IF selection means for preventing the selection of any
intermediate frequencies that will generate one or more
undesirable spurious frequencies when mixed with the
selected one of the more than one predetermined selectable
receive frequency.

18. The selective call receiver according to claim 17,
wherein the spurious frequency prevention means comprises a
memory means, the memory means including a preprogrammed
5 database, the database comprising a plurality of values
defining possible combinations of the more than one
predetermined selectable receive frequency and the at least
two predetermined intermediate frequencies of operation,
each of the values further indicating whether or not the
10 combination will generate one or more undesirable spurious
frequencies, and

wherein the IF selection means will not select any
combinations of IF with the selected one of the more than
one predetermined selectable receive frequency if such
15 combinations will generate one or more undesirable spurious
frequencies when mixed together.

19. The selective call receiver according to claim 17,
wherein the IF circuit means comprises a programmable
20 frequency generator.

20. The selective call receiver according to claim 17,
wherein the IF circuit means comprises a programmable IF
filter circuit.

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